

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-149388

(43)Date of publication of application : 24.05.2002

(51)Int.Cl.

G06F 3/12

(21)Application number : 2000-344135

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(22)Date of filing : 10.11.2000

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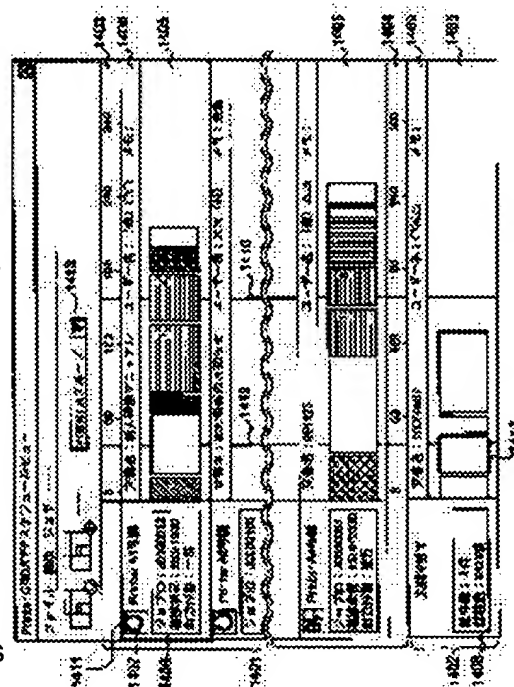
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(54) APPARATUS AND METHOD FOR CONTROLLING PRINTER AND COMPUTER READABLE RECORDING MEDIUM HAVING PROGRAM FOR MAKING COMPUTER PERFORM THE METHOD RECORDED THEREON

(57)Abstract:

PROBLEM TO BE SOLVED: To clearly display the load states of individual printers in the system at their respective points of time graphically and also in real time.

SOLUTION: A print server displays a schedule view like a selection drawing. In the schedule view, individual print jobs are represented by rectangles having a length corresponding to their own printing time and colors (or patterns) corresponding to their own states and displayed while arranged linearly for each allocated printer. It is possible to intuitively grasp the relative magnitude of the load of each printer by the length of a job graph and also the absolute quantity of the load of each printer, converted into the printing time, with a time scale displayed at the same time, respectively. In addition, the total amount of jobs unallocated to the printers, the details of jobs being processed and jobs being selected, or the state of each printer or the like are displayed at the same time.



LEGAL STATUS

[Date of request for examination]

09.11.2004

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the record medium which recorded the printer control unit which displays the loaded condition of at least one printer connected by the network, the printer control approach, and the program which makes a computer perform that approach and in which computer reading is possible.

[0002]

[Description of the Prior Art] In response to the commission from a customer (mainly company), the service which prints only number of copies which had the specified document specified, and is bound a book for and supplied by the specified approach and which is generally called "copy service", "printing service", etc. exists from the former.

[0003] A request of printing is performed by mailing the manuscript recorded on a paper medium or electronic media (FD, MO, CD-ROM, etc.) from the customer to the contractor who offers the above-mentioned service, and the printing instructions which indicated printing number of copies of the manuscript concerned, the bookbinding approach, a delivery-of-goods date, etc. (this is called "new submission of a manuscript"). Or when requesting printing again about the manuscript which had requested printing previously, by telephone, the manuscript currently kept at the contractor side may be specified and printing number of copies etc. may be directed (this is called "repeat submission of a manuscript").

[0004] In a contractor side, the processing sequence and processing stage are chiefly determined by a person's in charge intuition or experience about each request received from many and unspecified customers, considering printing number of sheets, a limit of the human and the material resource by the side of a delivery-of-goods date or a contractor, etc. And according to this schedule, a copy machine copies the specified manuscript, or it prints by the printer connected to (the case of paper submission of a manuscript), and the personal computer (in the case of electronic submission of a manuscript), and is made final a check and ****, and a customer is delivered.

[0005] On the other hand, while receiving the order of the printing request from a customer on-line through the Internet etc., it is with two or more printers connected with the print server there, and the system automatically performed to scheduling or print-out is also put in practical use.

[0006] For example, printing of the document concerned can be ordered by a customer accessing the Web page which a contractor offers from the personal computer of his company, writing down need matters, such as printing number of copies, in the form for a printing request (job ticket), and transmitting with the data of the document which requests printing.

[0007] In the contractor side who received the order of this, the printer which can complete most early the job already assigned by the print server among various kinds of printers connected to the server concerned by LAN is elected. And a new print job is added to the tail end of the print queue.

[0008] However, when it is the severe job of time for delivery and cannot wait for completion of other jobs, it may be made to interrupt in the middle of a queue exceptionally. Moreover, a job is distributed or the scheduling method [serve as / (equalization printing) or cost / as (concurrency printing) and the load of each printer become equal / divide a big job into some child jobs, and / **** / making it process by two or more printers / distribute a job or / min] of a more efficient job (optimization printing) is also put in practical use.

[0009]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional technique, there was

a trouble of being hard to grasp the allocation situation of the load to the total amount and each printer of a load of the whole system what amount of a job is supplied to the whole system and what amount of a job is not assigned or assigned to which printer before long.

[0010] Drawing 21 is the explanatory view showing an example of the print job list window displayed by the print server of the above-mentioned conventional technique. since neither a file size nor printing number of copies shows very much the time amount which processing of each job takes roughly, in addition to these (or these -- replacing with), the item of the printing time amount computed by a certain formula can also be established. however, the total printing time amount taken to process all the jobs to which each printer was distributed [that the printing time amount of each job is only specified by this, and] -- there is no other way but total to printing ask [which is taken to process all the jobs into which the whole system was thrown] by hand calculation etc.

[0011] About what time a certain job is processed by the assigned printer has no choice but to printing guess [of the job planned before it] it. [it] Therefore, it becomes [whether it does in a term, and] complicated working [which is checked in detail] each job. Moreover, the total amount of a job and the total amount of the job for every printer which are related as the processing stage of a job is unknown, for example, are processed within some fixed periods, such as a day, are incomprehensible.

[0012] This invention aims at offering the record medium which recorded the program which makes a computer perform the printer control unit which can display graphically intelligibly for real time the loaded condition in each time of each printer in a system, the printer control approach, and its approach and in which computer reading is possible in order to cancel the trouble by the conventional technique mentioned above.

[0013]

[Means for Solving the Problem] In order to solve the technical problem mentioned above and to attain the purpose, the printer control unit concerning invention according to claim 1 In the printer control unit which displays the loaded condition of at least one printer connected by the network A calculation means to compute the time amount taken for the printer assigned by the quota means which assigns a print job to one of printers, and said quota means to process said print job, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed by said calculation means about said print job A display means to arrange and display said predetermined configuration corresponding to each of all the print jobs that it matches with each printer, and is assigned to the printer concerned with said quota means, and have not been completed yet at perpendicularly fixed horizontally spacing, It is characterized by preparation *****.

[0014] According to this invention according to claim 1, it is expressed in the form of a job graph where the are recording situation of the job to each printer consists of all jobs accumulated in the printer concerned.

[0015] Moreover, the printer control unit concerning invention according to claim 2 In order that said display means may display the printer belonging to the same group of two or more groups beforehand classified for every printer by list in said invention according to claim 1 It matches with each printer by which said printer belongs to the same group. It is characterized by arranging and expressing said predetermined configuration corresponding to each of all the print jobs that it is assigned to the printer concerned with said quota means, and have not been completed yet as perpendicularly fixed horizontally spacing.

[0016] According to this invention according to claim 2, it is expressed in the form of a job graph where the are recording situation of each printer belonging to the same group consists of all jobs accumulated in the printer concerned.

[0017] Moreover, in said invention according to claim 1 or 2, the printer control unit concerning invention according to claim 3 is characterized by updating the contents of a display, whenever time amount with said fixed display means passes.

[0018] According to this invention according to claim 3, the are recording situation of the newest job to each printer is reflected in that job graph.

[0019] Moreover, in invention of any one publication of said claim 1 - claim 3, it is characterized by changing said predetermined color or predetermined pattern of a configuration according to the condition of a corresponding print job, and displaying it while said display means displays the printer control unit concerning invention according to claim 4 with the predetermined configuration of having the die length proportional to the time amount computed by said calculation means in said print job.

[0020] According to this invention according to claim 4, the condition of each job in a job graph is expressed by the predetermined color or predetermined pattern of a configuration that it corresponds.

[0021] Moreover, the printer control unit concerning invention according to claim 5 In invention of any one publication of said claim 1 - claim 4 said display means While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed by said calculation means about the print job divided from the same print job It is characterized by arranging and displaying the same picture or the same color containing the same alphabetic character including a notation etc., a graphic form, or an icon the predetermined interior or near [predetermined] the configuration. [concerned]

[0022] According to this invention according to claim 5, the alphabetic character same on a configuration predetermined [corresponding to each job after being divided and distributed by the concurrency print facility] is arranged.

[0023] Moreover, the printer control unit concerning invention according to claim 6 is characterized by having a time scale display means to display further the time scale with which the elapsed time from current time has been arranged in the direction parallel to the predetermined configuration arranged and displayed by said display means in invention of any one publication of said claim 1 - claim 5.

[0024] According to this invention according to claim 6, the amount of each job accumulated in each printer and its amount of whole are expressed with the absolute magnitude converted into printing time amount.

[0025] Moreover, the printer control unit concerning invention according to claim 7 is characterized by having a guide-bar display means to display at least one straight line which be arranged and displayed in the direction still more nearly perpendicular to the time scale displayed by said time scale display means with one of the elapsed time and said display means of the time scale concerned and which shifts and passes that predetermined configuration in said invention according to claim 6.

[0026] According to this invention according to claim 7, the guide bar which it has in various applications, such as equalization of the loaded condition between printers, and can be been is displayed.

[0027] Moreover, in said invention according to claim 7, the printer control device concerning invention according to claim 8 is characterized by only the part of the elapsed time concerned moving said guide bar in the direction of an origin of said time scale, whenever time amount with said fixed guide-bar display means passes.

[0028] According to this invention according to claim 8, only in the part of elapsed time, a guide bar goes back a scale top.

[0029] Moreover, the printer control unit concerning invention according to claim 9 is characterized by having matched with the printer of further each and having a job information-display means during the processing which displays the information on the print job under processing by the printer concerned in invention of any one publication of said claim 1 - claim 8.

[0030] According to this invention according to claim 9, in accordance with the are recording situation of the job to each printer, the detailed information of the job under processing is expressed as each printer.

[0031] Moreover, the printer control device concerning invention according to claim 10 is characterized by being at least one of the document name of the print job which said information is processing, a user name, a memorandum, Job ID, a progress situation, and the output gestalten in said invention according to claim 9.

[0032] According to this invention according to claim 10, in accordance with the are recording situation of the job to each printer, at least one of the document name of the job concerned, a user name, a memorandum, Job ID, a progress situation, and the output gestalten is expressed on the detailed information of the job under processing, and a concrete target as each printer.

[0033] Moreover, the printer control device concerning invention according to claim 11 is characterized by what a job information-display means matches said information with the printer concerned, and displays on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed by said display means during said processing in said invention according to claim 9 or 10.

[0034] According to this invention according to claim 11, the detailed information of the job under processing makes each other adjoin, and it is expressed as the are recording situation and the printer concerned of a job to a certain printer.

[0035] Moreover, the printer control unit concerning invention according to claim 12 In invention of any one publication of said claim 1 - claim 11 further When the condition of the print job corresponding to a top thing is stopping among the predetermined configurations arranged and displayed by said display means, it is characterized by having a printer status-display means to display the icon which shows a halt of the printer by which the predetermined configuration concerned was displayed by matching.

[0036] According to this invention according to claim 12, it is specified by the icon that a halt of a printer originates in the job under halt instead of a trouble.

[0037] Moreover, the printer control unit concerning invention according to claim 13 In invention of any one publication of said claim 1 - claim 12 further The 2nd calculation means which computes the time amount taken to process the print job to which assignment to one by said quota means of printers is not performed yet, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed by said 2nd calculation means about said print job It is characterized by having the 2nd display means displayed on a viewing area other than the viewing area of the predetermined configuration which arranged the predetermined configuration concerned at horizontal or, perpendicularly fixed spacing, arranged with said display means, and was displayed.

[0038] According to this invention according to claim 13, the are recording situation of the job which is not assigned to a printer yet is expressed in the form of the job graph which consists of all non-assigned jobs.

[0039] Moreover, the printer control unit concerning invention according to claim 14 is characterized by having all sheep quota job information-display means to display further the total and its total printing number of sheets of the print job to which assignment to one by said quota means of printers is not performed yet in said invention according to claim 13.

[0040] According to this invention according to claim 14, in accordance with a job graph, the total and the total printing number of sheets of a non-assigned job are specified by the numeric value.

[0041] Moreover, the printer control device concerning invention according to claim 15 is characterized by said all sheep quota job information-display means displaying said total and the total printing number of sheets on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed by said 2nd display means in said invention according to claim 14.

[0042] According to this invention according to claim 15, the are recording situation, its total, and the total printing number of sheets of a non-assigned job make each other adjoin, and it is displayed.

[0043] Moreover, in invention of any one publication of said claim 1 - claim 15, the printer control unit concerning invention according to claim 16 is characterized by having a job information-display means during the selection which displays information, although assignment to one by said quota means of printers was further chosen among the print jobs which are not performed yet.

[0044] According to this invention according to claim 16, in accordance with a job graph, the detailed information of the job chosen among non-assigned jobs is displayed.

[0045] Moreover, the printer control device concerning invention according to claim 17 is characterized by being at least one of the document name of the print job which said information is choosing, a user name, and the memoranda in said invention according to claim 16.

[0046] According to this invention according to claim 17, in accordance with a job graph, at least one of that document name, a user name, and the memoranda is displayed on the detailed information of the job chosen among non-assigned jobs, and a concrete target.

[0047] Moreover, the printer control device concerning invention according to claim 18 is characterized by a job information-display means displaying said information on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed by said 2nd display means during said selection in said invention according to claim 16 or 17.

[0048] According to this invention according to claim 18, the are recording situation of a non-assigned job and the detailed information of a job chosen before long make each other adjoin, and it is displayed.

[0049] Moreover, the printer control unit concerning invention according to claim 19 An assignment means to specify the interruption location of the print job under selection further in invention of any one publication of said claim 1 - claim 18, It is characterized by having an interruption position representation means to interrupt between two predetermined configurations which were specified by said assignment means and which interrupt and are displayed on the recently side of a location, and to display a location pointer.

[0050] According to this invention according to claim 19, between which jobs and which jobs the selected job interrupts interrupts, and it is clearly shown by the location pointer.

[0051] Moreover, the printer control approach concerning invention according to claim 20 In the printer control approach which displays the loaded condition of at least one printer connected by the network The calculation process which computes the time amount taken for the printer assigned at the quota process which assigns a print job to one of printers, and said quota process to process said print job, While displaying with the

predetermined configuration of having the die length which is proportional to the time amount computed at said calculation process about said print job. It is characterized by including the display process which arranges and displays said predetermined configuration corresponding to each of all the print jobs that it matches with each printer, and is assigned to the printer concerned at said quota process, and have not been completed yet at perpendicularly fixed horizontally spacing.

[0052] According to this invention according to claim 20, it is expressed in the form of a job graph where the recording situation of the job to each printer consists of all jobs accumulated in the printer concerned.

[0053] Moreover, the printer control approach concerning invention according to claim 21. It matches with each printer which belongs to the same group of two or more groups beforehand classified according to said display process for every printer in said invention according to claim 20. It is characterized by arranging and expressing said predetermined configuration corresponding to each of all the print jobs that it is assigned to the printer concerned at said quota process, and have not been completed yet as perpendicularly fixed horizontally spacing.

[0054] According to this invention according to claim 21, it is expressed in the form of a job graph where the recording situation of each printer belonging to the same group consists of all jobs accumulated in the printer concerned.

[0055] Moreover, in said invention according to claim 20 or 21, the printer control approach concerning invention according to claim 22 is characterized by including the regeneration process which updates the contents displayed at said display process, whenever still more fixed time amount passes.

[0056] According to this invention according to claim 22, the recording situation of the newest job to each printer is reflected in that job graph.

[0057] Moreover, the printer control approach concerning invention according to claim 23 is said display process in invention of any one publication of said claim 20 - claim 22, and it is characterized by to change said predetermined color or predetermined pattern of a configuration according to the condition of a corresponding print job, and to display it while displaying with the predetermined configuration of having the die length proportional to the time amount computed at said calculation process in said print job.

[0058] According to this invention according to claim 23, the condition of each job in a job graph is expressed by the predetermined color or predetermined pattern of a configuration that it corresponds.

[0059] Moreover, the printer control approach concerning invention according to claim 24. In invention of any one publication of said claim 20 - claim 23 at said display process. While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said calculation process about the print job divided from the same print job. It is characterized by arranging and displaying the same picture or the same color containing the same alphabetic character including a notation etc., a graphic form, or an icon the predetermined interior or near [predetermined] the configuration. [concerned]

[0060] According to this invention according to claim 24, the alphabetic character same on a configuration predetermined [corresponding to each job after being divided and distributed by the concurrency print facility] is arranged.

[0061] Moreover, the printer control approach concerning invention according to claim 25 is characterized by including the time scale display process which displays further the time scale with which the elapsed time from current time has been arranged in the direction parallel to the predetermined configuration arranged and displayed at said display process in invention of any one publication of said claim 20 - claim 24.

[0062] According to this invention according to claim 25, the amount of each job accumulated in each printer and its amount of whole are expressed with the absolute magnitude converted into printing time amount.

[0063] Moreover, the printer control approach concerning invention according to claim 26 is characterized by to include the guide-bar display process which displays at least one straight line which be arranged and displayed in the direction still more nearly perpendicular to the time scale displayed at said time scale display process at one of the elapsed time and said display processes of the time scale concerned, and which shifts and passes that predetermined configuration in said invention according to claim 25.

[0064] According to this invention according to claim 26, the guide bar which it has in various applications, such as equalization of the loaded condition between printers, and can be seen is displayed.

[0065] Moreover, in said invention according to claim 26, the printer control approach concerning invention according to claim 27 is characterized by including the guide-bar regeneration process that only the part of the elapsed time concerned moves said guide bar in the direction of an origin of said time scale, whenever still more

fixed time amount passes.

[0066] According to this invention according to claim 27, only in the part of elapsed time, a guide bar goes back a scale top.

[0067] Moreover, the printer control approach concerning invention according to claim 28 is characterized by having matched with the printer of further each and including a job information-display process during the processing which displays the information on the print job under processing by the printer concerned in invention of any one publication of said claim 20 - claim 27.

[0068] According to this invention according to claim 28, in accordance with the are recording situation of the job to each printer, the detailed information of the job under processing is expressed as each printer.

[0069] Moreover, the printer control approach concerning invention according to claim 29 is characterized by being at least one of the document name of the print job which said information is processing, a user name, a memorandum, Job ID, a progress situation, and the output gestalten in said invention according to claim 28.

[0070] According to this invention according to claim 29, in accordance with the are recording situation of the job to each printer, at least one of the document name of the job concerned, a user name, a memorandum, Job ID, a progress situation, and the output gestalten is expressed on the detailed information of the job under processing, and a concrete target as each printer.

[0071] Moreover, in said invention according to claim 28 or 29, the printer control approach concerning invention according to claim 30 is a job information-display process during said processing, and is characterized by what said information is matched with the printer concerned and displayed on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed at said display process.

[0072] According to this invention according to claim 30, the detailed information of the job under processing makes each other adjoin, and it is expressed as the are recording situation and the printer concerned of a job to a certain printer.

[0073] Moreover, the printer control approach concerning invention according to claim 31 In invention of any one publication of said claim 20 - claim 30 Furthermore, when the condition of the print job corresponding to a top thing is stopping among the predetermined configurations arranged and displayed at said display process, it is characterized by including the printer status-display process which displays the icon which shows a halt of the printer by which the predetermined configuration concerned was displayed by matching.

[0074] According to this invention according to claim 31, it is specified by the icon that a halt of a printer originates in the job under halt instead of a trouble.

[0075] Moreover, the printer control approach concerning invention according to claim 32 In invention of any one publication of said claim 20 - claim 31 Furthermore, the 2nd calculation process which computes the time amount taken to process the print job to which assignment to one by said quota process of printers is not performed yet, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said 2nd calculation process about said print job It is characterized by including the 2nd display process displayed on a viewing area other than the viewing area of the predetermined configuration which arranged the predetermined configuration concerned at horizontal or, perpendicularly fixed spacing, arranged at said display process, and was displayed.

[0076] According to this invention according to claim 32, the are recording situation of the job which is not assigned to a printer yet is expressed in the form of the job graph which consists of all non-assigned jobs.

[0077] Moreover, the printer control approach concerning invention according to claim 33 is characterized by including all the sheep quota job information-display processes that display further the total and its total printing number of sheets of the print job to which assignment to one by said quota process of printers is not performed yet in said invention according to claim 32.

[0078] According to this invention according to claim 33, in accordance with a job graph, the total and the total printing number of sheets of a non-assigned job are specified by the numeric value.

[0079] Moreover, in said invention according to claim 33, the printer control approaches concerning invention according to claim 34 are said all sheep quota job information-display processes, and are characterized by displaying said total and the total printing number of sheets on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed at said 2nd display process.

[0080] According to this invention according to claim 34, the are recording situation, its total, and the total printing number of sheets of a non-assigned job make each other adjoin, and it is displayed.

[0081] Moreover, in invention of any one publication of said claim 20 - claim 34, the printer control approach concerning invention according to claim 35 is characterized by including a job information-display process during the selection which displays information, although assignment to one by said quota process of printers was further chosen among the print jobs which are not performed yet.

[0082] According to this invention according to claim 35, in accordance with a job graph, the detailed information of the job chosen among non-assigned jobs is displayed.

[0083] Moreover, the printer control approach concerning invention according to claim 36 is characterized by being at least one of the document name of the print job which said information is choosing, a user name, and the memoranda in said invention according to claim 35.

[0084] According to this invention according to claim 36, in accordance with a job graph, at least one of that document name, a user name, and the memoranda is displayed on the detailed information of the job chosen among non-assigned jobs, and a concrete target.

[0085] Moreover, in said invention according to claim 35 or 36, the printer control approach concerning invention according to claim 37 is a job information-display process during said selection, and is characterized by displaying said information on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed at said 2nd display process.

[0086] According to this invention according to claim 37, the are recording situation of a non-assigned job and the detailed information of a job chosen before long make each other adjoin, and it is displayed.

[0087] Moreover, the printer control approach concerning invention according to claim 38 In invention of any one publication of said claim 20 - claim 37 Furthermore, it is characterized by including the assignment process which specifies the interruption location of the print job under selection, and the interruption position representation process which interrupts between two predetermined configurations which were specified at said assignment process, and which interrupt and are displayed on the recently side of a location, and displays a location pointer.

[0088] According to this invention according to claim 38, between which jobs and which jobs the selected job interrupts interrupts, and it is clearly shown by the location pointer.

[0089] Moreover, the record medium concerning invention according to claim 39 is having recorded the program which makes a computer perform the approach indicated by any one of said claim 20 - the claims 38, becomes possible [reading the program concerned by computer], and becomes possible [enforcing the approach indicated by this any one of said claim 20 - the claims 38 by computer].

[0090]

[Embodiment of the Invention] The gestalt of suitable operation of the record medium which recorded the program which makes a computer perform the printer control unit applied to this invention with reference to an accompanying drawing below, the printer control approach, and its approach and in which computer reading is possible is explained to a detail.

[0091] [Embodiment of the Invention]

(System configuration of a printing system) The configuration of the whole printing system containing the printer control unit by the gestalt of implementation of this invention is explained first. Drawing 1 is the explanatory view showing the system configuration of the printing system containing the printer control unit by the gestalt of this operation.

[0092] In drawing 1 , 101 is a user client and is a computer used in order that a customer may entrust printing business to a contractor. From this computer, a web browser can be started and the job ticket in which that printing condition was written down as the document for printing can be transmitted by accessing the Web page for a printing request on the WWW server 104 which mentions later.

[0093] A printing system is constituted by the client 102 for reception explained below, the management client 103, the WWW server 104, a print server 105, the documentation-management server 106, and two or more printers 107 in drawing 1 . These computers and printers are connected by LAN.

[0094] 102 is a client for reception and is a computer used in order that the person in charge by the side of the contractor who received the request by the telephone and mail from the customer concerned instead of the customer who does not have facilities, such as a computer and a network, may input the document for printing, and a job ticket. Functionally, it is the same as that of the user client 101.

[0095] 103 is a management client, and in order to manage the printing business requested by the customer, it is a computer which the person in charge by the side of a contractor uses. The document and job ticket to print can

be registered, searched, deleted / managed by accessing the printing administrative Web page on the WWW server 104 from a web browser.

[0096] 104 is a WWW server and is a computer for offering three kinds of Web pages, the Web page for a printing request, a printing administrative Web page, and the Web page for documentation-management servers, and each Web application. Moreover, the WWW server 104 will transmit to the print server 105 which mentions the demand concerned later, if a new printing request is received from the user client 101 or the client 102 for reception through the above-mentioned Web page.

[0097] 105 is a print server, controls the printer 107 mentioned later, and makes the print job supplied from the user client 101 or the client 102 for reception process. moreover, the after-mentioned -- like -- the are recording situation and progress situation of the job to each printer, the system operating status of each printer, etc. -- real time -- and a screen display is carried out graphically.

[0098] 106 is a documentation-management server and is a computer for accumulating and managing the document for printing, and a job ticket. The documentation-management server 106 searches and transmits the document and job ticket to hold in response to the acquisition demand from a print server 105.

[0099] In addition, the client 102 for reception, the management client 103, the WWW server 104, a print server 105, and the documentation-management server 106 do not necessarily need to be separate computers, for example, you may make it one computer have the function of all above.

[0100] 107 is a printer, and it is printed on a predetermined form according to the conditions which had the image-ized document specified while it creates the space image from the document for printing according to control of a print server 105.

[0101] Below, the hardware configuration of the printer control device (specifically print server 105) by the gestalt of implementation of this invention is explained. Drawing 2 is the explanatory view showing the hardware configuration of the print server 105 by the gestalt of this operation.

[0102] In drawing 2, RAM for which 203 is used as a work area of CPU201 in ROM 202 remembered the intercalation output program to be for CPU by which 201 controls actuation of the whole equipment is shown, respectively.

[0103] Moreover, HD which memorizes the data with which HDD (hard disk drive) by which 204 controls the read/write of the data to HD (hard disk)205 according to control of CPU201 was written in 205 according to control of HDD204 is shown, respectively. Moreover, FD as an example of the storage which can be detached and attached which memorizes the data with which FDD (floppy disk drive) by which 206 controls the read/write of the data to FD (floppy (trademark) disk)207 according to control of CPU201 was written in 207 according to control of FDD206 is shown, respectively.

[0104] Moreover, the network board on which it connects with the networks NET, such as LAN, through the network cables 210, such as a twisted pair wire, and 209 functions the display whose 208 displays various data, such as cursor, a menu, a window or an alphabetic character, and an image, as an interface with the networks NET and CPU201 is shown, respectively.

[0105] Moreover, the mouse with which 212 performs the keyboard with which 211 was equipped with two or more keys for inputs, such as an alphabetic character, a numeric value, and various directions, for selection of various directions, activation and selection of a processing object, migration of cursor, etc. is shown, respectively. Moreover, a bus or a cable for 200 to connect each part of the above for the CD-ROM drive with which 214 controls the lead of data [as opposed to CD-ROM213 for CD-ROM which is a record medium with removable 213] is shown, respectively.

[0106] Below, the functional configuration of the printer control device (print server 105) by the gestalt of implementation of this invention is explained. Drawing 3 is the explanatory view showing functionally the configuration of the print server 105 by the gestalt of this operation. In addition, in this drawing, only a minimum function part required in order to explain this invention is shown, and illustration is omitted about other parts.

[0107] In drawing 3, 301 is the Web interface section which controls the communication link with the WWW server 104, and receives the various demands including the printing request, i.e., the registration demand of a print job, transmitted through the WWW server 104 from the user client 101 etc.

[0108] Since the demand which receives has the detail check of the print job already registered besides registration of a print job, a condition check, the list display of the print job registered into the past, etc., the Web interface section 301 distinguishes whether the demand inputted first is demand [which]. And when the

inputted demand is registration of a print job, it passes documentation-management server 106 through the interface section 302 for documentation-management servers which mentions the document for printing, and a job ticket later, and (when the printer assignment at the time of an injection is chosen in the dialog of drawing 9 mentioned later), it outputs to the printer quota section 307 mentioned later, respectively.

[0109] 302 transmits a registration request of the document for printing which is the interface section for documentation-management servers which controls the communication link with the documentation-management server 106, and was inputted from the Web interface section 301, and a job ticket to the documentation-management server 106. Or the already registered acquisition demand of a document or a job ticket is transmitted, and a document and a job ticket concerned are received.

[0110] 303 is a data base manager, receives the request from the printer interface section 304 mentioned later, the printing time amount calculation section 306, the printer quota section 307, etc., and performs the writing to the print job table 303a to hold, printing schedule table 303b, and printer table 303c.

[0111] Print job table 303a is a table for holding the detail of the contents of the print job supplied from the user client 101 etc. Drawing 4 is the explanatory view showing an example of the item of print job table 303a. Thus, it matches with Job ID and various printing conditions, such as printing number of copies (it sets to this drawing and is "NUM") and printing pagination (** "OPAGE"), are registered into print job table 303a.

[0112] Moreover, printing schedule table 303b is the processing schedule printer of each job registered into print job table 303a, and a table for holding the condition in this time etc. Drawing 5 is the explanatory view showing an example of the item of printing schedule table 303b. Thus, it matches with Job ID and the processing schedule printer (it sets to this drawing and is "PRNT"), the condition (** "KFLG") in this time, printing time amount (** "TIME"), etc. are registered into printing schedule table 303b.

[0113] Printer table 303c is a table for holding a property, a condition in this time, etc. of each printer in that group that belongs, and the scheduling method for every group or a group about all the printers 107 that this print server 105 manages. Drawing 6 is the explanatory view showing an example of printer table 303c typically. "*" mark in drawing shows the group chosen by the input section 305 like the after-mentioned, and the are recording situation of the job to each printer in this group collects into the schedule view mentioned later, and it is displayed.

[0114] The contents of the "condition" item are rewritten at any time like the after-mentioned by the notice from the printer interface section 304 among each item of printer table 303c shown in drawing 6. Moreover, the contents of each item other than the above are set up by each dialog shown in drawing 7 - drawing 9.

[0115] If the depression of the additional carbon button 701 is carried out in the dialog shown in drawing 7, since the dialog shown in drawing 8 will be displayed, the group name of arbitration, such as "Printer B", is inputted, for example. Furthermore, if a desired printer is chosen from the printer which can be added and the depression of the additional carbon button 801 is carried out, the selected printer will be added to the printer which a "Printer B" group manages. And since the dialog shown in drawing 9 will be displayed if the depression of the carbon button 802 is carried out to a degree, the scheduling method of the group who added etc. is set up.

[0116] In the "actuation at time of reception" item of a dialog shown in drawing 9 Display the dialog of drawing 10 which mentions assignment to the printer of the new job later to an injection and coincidence of (a) new job, and make it carry out to an operator manually. (b) The printer quota section 307 later mentioned to an injection and coincidence of the new job performs automatically. Or at the time of the (c) injection, it chooses whether the schedule method of ***** which is not held but is made to perform to an operator manually at any time with the Maine view mentioned later or a schedule view is adopted. Here, (a) shall be chosen like [group / a "Printer B" group and / "Printer A"] illustration.

[0117] Moreover, in the "concurrency printing" item of a dialog shown in drawing 9, when printing number of copies of a job exceeds a threshold, the above-mentioned threshold in whether in the dialog of drawing 10 mentioned later, the job concerned is divided by the default and it distributes to two or more printers and the case of doing so is set up. And when the completion carbon button 901 is pushed, drawing 8 and the contents of a setting in the dialog of drawing 9 are written in printer table 303c by the data base manager 303.

[0118] 304 is the printer interface section which controls the communication link with a printer 107, and whenever completion of a job was notified from one of printers, when request a data base manager 303, the following job currently assigned to the printer concerned from printing schedule table 303b is made to search and the following job is found, it makes the detail of the job concerned currently held at print job table 303a

answer a letter.

[0119] And the name (or information which can specify the documents concerned, such as ID) of the document for printing is extracted out of the received job detail, and, subsequently the data of the document concerned are acquired through the interface section 302 for documentation-management servers. And need matters, such as data of the document for printing and printing number of copies, are transmitted, and the above-mentioned job is made to process to the printer 107 specified by printing schedule table 303b.

[0120] Moreover, the printer interface section 304 receives the condition of being transmitted at fixed spacing from each printer. And a data base manager 303 is requested and a new condition is made to rewrite the "condition" item of printer table 303c about the printer from which the condition changed. Moreover, the condition of each job is deduced from the condition of each printer, a data base manager 303 is requested, and the condition of each job held at printing schedule table 303b is made to update.

[0121] 305 is the input section and inputs various directions, such as switch directions of the printer group which selection-directs [of the job displayed on the schedule view mentioned later or a printer], and is displayed, printer quota directions, and interruption directions of a job. In addition, a part of that processing to perform is equivalent to the "assignment process" said at a claim at the "assignment means" which this input section 305 says to a claim, respectively.

[0122] When there is a request from the printer quota section 307 which 306 is the printing time amount calculation section, and is mentioned later The time amount predicted that only this starts processing each of each job which was inputted, That is, it is with the print speed of the printer by which printing time amount was assigned, the predetermined formula, for example, job concerned, and is the print speed (ppm (prints per minute)) of printing time amount (min) = 60(min) x printing number-of-copies x printing pagination / printer. It calculates "Be alike."

[0123] In addition, when computing the printing time amount of the job which is not assigned to a printer, it substitutes for the average of the print speed of all the managed printers etc. as a print speed of a printer.

[0124] The above-mentioned printing time amount notified to the printer quota section 307 from the printing time amount calculation section 306 is written in the "printing time amount" item of printing schedule table 303b by the data base manager 303 which received the request from the printer quota section 307. However, whenever fixed time amount passes, request the printing time amount calculation section 306 from a data base manager 303, it makes the printing time amount of a job read from printing schedule table 303b during printing, and re-calculates the value.

[0125] The formula in that case is print-speed (cpm)} of printing time amount (min) = {print speed (cpm) of 60 (min) x printing number-of-copies x printing pagination / printer} - {60(min) x mechanism number of sheets (= number of sheets which already completed printing) / printer}.

It comes out. And the re-calculated printing time amount is requested from a data base manager 303, and it is made to return to printing schedule table 303b.

[0126] Strictly, the printing time amount which is calculated and re-calculated by the printing time amount calculation section 306, and is held at printing schedule table 303b is residual time amount predicted that only this takes for processing the job concerned after current, decreases with progress of a job about the job under printing, and serves as zero at the time of the completion so that clearly from the above-mentioned explanation.

[0127] In addition, that processing to perform is equivalent to the "calculation process" and "the 2nd calculation process" which are said at a claim again at the "calculation means" which this printing time amount calculation section 306 says to a claim, and "the 2nd calculation means", respectively.

[0128] 307 is the printer quota section, and when (a) is set up as mentioned above by the "actuation at time of reception" item of a dialog shown in drawing 9 R> 9, it displays a dialog as shown in drawing 10 on an injection and coincidence of the new job from the Web interface section 301. If quota number of copies to the printer and each printer which assign the new job concerned in this dialog is set up and a carbon button 1001 is pushed on a degree, a dialog as further shown in drawing 11 will be displayed.

[0129] And if the priority of a job etc. is set up in this dialog and the completion carbon button 1101 is pushed, Job ID (serial number) will be first given to the new job. When a job is divided in the dialog of drawing 10 and it is distributed to two or more printers at this time (i.e., when concurrency printing is directed), while giving Job ID to the parent job before division, the job ID which added the serial number original with a child job at ID of a parent job is given to each child job after division.

[0130] Furthermore, the printer quota section 307 is requested from the printing time amount calculation section

306, and makes the printing time amount of each above-mentioned job compute. And the contents set up in the dialog of this printing time amount, Job ID, drawing 10, and drawing 11 and the job ticket received from the Web interface section 301 are outputted to a data base manager 303.

[0131] In a data base manager 303, a need matter is extracted from such inputted information, and it writes in each item of print job table 303a and printing schedule table 303b. In addition, at print job table 303a, it is the unit requested by the customer, i.e., a parent job unit, and a record is created by printing schedule table 303b per the unit actually processed by the printer, i.e., child job.

[0132] In addition, if Cancel button 1002 of a dialog shown in drawing 10 or Cancel button 1102 of a dialog shown in drawing 11 is pushed, the printer quota section 307 will output only Job ID, printing time amount, and the job ticket received from the Web interface section 301 to a data base manager 303. "PRNT [therefore,]" item of for example, printing schedule table 303b serves as as [null].

[0133] thus, the job which has a printer in an undecided condition although the job ID at least is written in print job table 303a or printing schedule table 303b -- the following -- "printer un-assigning" -- or it is only called the job non-"assigned."

[0134] In addition, that processing to perform is equivalent to the "quota process" said at each claim again at the "quota means" which this printer quota section 307 says to a claim, respectively.

[0135] 308 is the Maine view display, reads a need matter from each table of a data base manager 303, and displays the Maine view as shown in drawing 12. In the window shown in this drawing, that interior is roughly trichotomized and all the printers managed by this print server are displayed on the left-hand side field 1201 in the shape of a tree for every group.

[0136] And a list indication of the job which the job before the completion planned already completed in the printer concerned to the field 1202 on right-hand side again about the printer chosen here or all the printers in the group chosen is given to the field 1203 under right-hand side, respectively.

[0137] This window is fundamentally similar with the job list window by the conventional technique shown in drawing 21. Therefore, it may be incomprehensible about what time a certain job completes how much load is applied to which printer in a group by the assigned printer. Then, it is made for the schedule view with which it replaced with this and the above was displayed intelligibly to be displayed by carrying out the depression of the schedule viewer icon 1204 on this Maine view.

[0138] 309 is a schedule view display and is 309d of job information-display sections, printer status-display section 309e, and 309f of all sheep quota job information-display sections and the configuration which contains 309g of job information-display sections, and 309h of interruption position representation sections during selection job graphical representation section 309a, time scale display 309b, guide-bar display 309c, and during processing.

[0139] Drawing 13 is the explanatory view showing typically the structure of the schedule view displayed by the schedule view display 309. In the window, it assigns, and is divided into the ending job display area 1301 and the non-assigned job display area 1302, and the time scale display area 1303 and 1304 is formed to the each.

[0140] The assigned job display area 1301 is further divided into block 1301 a-d for every printer. In addition, although the case where a window is horizontally divided for every printer is explained as an example below as shown in this drawing, you may divide not only in this but perpendicularly. Each block consists of job information-display area 1306 and printer status-display area 1307 during the job graphical representation area 1305 and processing.

[0141] Moreover, the non-assigned job display area 1302 is constituted by one block, and the block concerned is constituted by the job information-display area 1309 during the job graphical representation area 1305, all the sheep quota job information-display area 1308, and selection.

[0142] In addition, each job graphical representation area 1305 is drawn by job graphical representation section 309a, and that processing to perform is equivalent to the "display process" and "the 2nd display process" which are said at each claim again at the "display means" which this job graphical representation section 309a says to each claim, and "the 2nd display means", respectively.

[0143] Moreover, the time scale display area 1303 and 1304 is drawn by time scale display 309b, and that processing to perform is equivalent to the "time scale display process" said at each claim again at the "time scale display means" which this time scale display 309b says to each claim, respectively.

[0144] Moreover, the guide bar 1410 later mentioned by drawing 14 although it has not appeared in drawing 13

is drawn by guide-bar display 309c, and that processing to perform is equivalent to the "guide-bar display process" and the "guide-bar regeneration process" which are said at each claim again at the "guide-bar display means" which this guide-bar display 309c says to each claim, respectively.

[0145] Moreover, during processing, the job information-display area 1306 is drawn during processing by 309d of job information-display sections, and that processing to perform is equivalent to "being a job information-display process during processing" again "it being a job information-display means during processing" during this processing, respectively. [which 309d of job information-display sections says to each claim] [which is said to each claim]

[0146] Moreover, the printer status-display area 1307 is drawn by printer status-display section 309e, and that processing to perform is equivalent to the "printer status-display process" said at each claim again at the "printer status-display means" which this printer status-display section 309e says to each claim, respectively.

[0147] Moreover, all the sheep quota job information-display area 1308 is drawn by 309f of all sheep quota job information-display sections, and that processing to perform is equivalent to "all the sheep quota job information-display processes" said at each claim again at "all the sheep quota job information-display means" which 309f of all these sheep quota job information-display sections says to each claim, respectively.

[0148] Moreover, during selection, the job information-display area 1309 is drawn during selection by 309g of job information-display sections, and that processing to perform is equivalent to "being a job information-display process during selection" again "it being a job information-display means during selection" during this selection, respectively. [which 309g of job information-display sections says to each claim] [which is said to each claim]

[0149] Moreover, although it has not appeared in drawing 13, the interruption location pointer 1901 later mentioned by drawing 19 is drawn by 309h of interruption position representation sections, and that processing to perform is equivalent to the "interruption position representation process" said at each claim again at the "interruption position representation means" which 309h of this interruption position representation section says to each claim, respectively.

[0150] Drawing 14 is the explanatory view showing an example of the schedule view displayed by the schedule view display 309. First, the predetermined configuration where what is the job currently assigned to the printer and is not completed yet in each job graphical representation area 1405 of the assigned job display area 1401 has the die length proportional to the printing time amount (for example, rectangle.) the following -- only -- "a rectangle" -- saying -- it is expressed, and between is shortened in order and it is displayed. In addition, between each job, the gap of 1 dot of a background color and the same color (clearance) is prepared so that intelligibly [the boundary].

[0151] In addition, although the band-like (the shape of a bar) rectangle in which the rectangle of each job assigned to the same printer was arranged and formed with 1 dot space is called a "job graph" below, as a result of the die length of each rectangle being proportional to the printing time amount of each job, the die length of each job graph will be proportional to the total processing time of the job accumulated in the printer, i.e., the load of each printer. Therefore, the size of the load of each printer can be intuitively grasped by the merits and demerits of a job graph.

[0152] In addition, when [the case where a new job is supplied and when a processing schedule printer is determined and changed about the existing job] If it collects when one of jobs and printers have change of a condition, and the printing time amount of the job under printing is re-calculated with the progress When writing and rewriting of some kind are made per one which is held in the data base manager 303 of tables, job graphical representation section 309a performs regeneration (refresh) of each job graph with reference to each above-mentioned table after writing / rewriting.

[0153] As mentioned above, since the printing time amount of a job is re-calculated with the progress and decreases gradually during printing, the die length of the rectangle corresponding to the job concerned also becomes short at every regeneration. Since a job is always displayed on a head [of a job graph], i.e., origin of time scale mentioned later, side during printing, if the die length of a top rectangle is shortened, the rectangle of the part consecutiveness will be packed in the direction of an origin. Speaking more nearly intuitively, the job graph of each printer carrying out sequential migration on left-hand side in connection with the passage of time the direction of a head, and here, and the point's consisting of an origin the outside of a screen. Therefore, the progress situation of the job in each printer can be intuitively grasped by migration of a job graph.

[0154] In addition, the color or pattern of each rectangle in a job graph expresses the condition of the job

corresponding to the rectangle concerned, and is updated reflecting the new condition of each job at the time of the above-mentioned regeneration. Drawing 15 is the explanatory view showing a rectangular color or the correspondence relation between a pattern and the condition of a job.

[0155] Moreover, in other words, alphabetic characters, such as "1" displayed on the upper right corner in a rectangle and "2", show that it is the child job divided from the parent job with the job shown with the rectangle concerned, and that the job concerned is set as the object of concurrency printing. Since an alphabetic character common to each child job divided from the same parent job is added, it becomes intelligible by which printer the job by which concurrency printing is carried out by two or more printers is processed when.

[0156] Although the above-mentioned alphabetic character was shown in the rectangle, it is not limited to it, but it is a rectangular outside and you may make it display near the rectangle that it turns out that the rectangle is shown. Moreover, although it was with the same figure with the gestalt of this operation, it is not limited to this, but you may be with the same alphabetic character, and may make it be with the same graphic form and a picture like an icon. Moreover, you may make it by changing a display gestalt show the job of divided another side by pointing to one side of the job divided by the icon etc.

[0157] Moreover, the are recording situation of the job in each printer from "Printer A1 No." to a "Printer A" group's "Printer A4 number machine" is displayed on coincidence two or more printers in the group chosen as the assigned job display area 1401, and here.

[0158] In order to see the are recording situation of the job in other groups, switch directions of the printer group displayed from the input section 305 are inputted. As specifically shown in drawing 16, a desired group is clicked with a mouse 212 from the pulldown list 1413 of the window upper part. If a selection switch in other groups is performed by printer table 303c by the data base manager 303 which received the request from the input section 305, each part of the schedule view display 309 will be replaced with the group who was displaying till then, and will display the detailed information of a job etc. during the are recording situation of a job, or processing about each printer in the newly chosen group.

[0159] Moreover, the time scale is shown to ***** of the time scale display area 1403 and 1404 by the schedule view shown in drawing 14. The elapsed time from current time is arranged at this time scale, and that unit is "minute backward."

[0160] Even if there is no time scale, although the relative size of the load of each printer can be grasped with the die length of a job graph, the magnitude of an absolute load that it makes it printing time amount and is what amount is not known. the display of a time scale -- for example, if the termination of the job graph of a certain printer is located "after 120 minutes" on a scale, it turns out that it remains in the printer concerned and the job for 120 minutes is accumulated.

[0161] Moreover, for example, the rectangle in which the termination is located "after 300 minutes" on a scale Since the job of the completion schedule of processing is shown after 300 minutes (5 hours after) Conversely, if it finds whether the rectangular termination showing the job concerned is in origin approach rather than the 300-minute back on a scale when there is a job which must be completed by 17:00 of a during [that day (i.e., closing time of day)] as of 12:00 It can judge easily whether the job concerned will be processed by the term.

[0162] Moreover, certain one on a scale is passed to the schedule view shown in drawing 14, and the guide bar 1410 which straddles the job graph of each printer in the direction which intersects perpendicularly with it is displayed on it. Although, as for each straight line, between has broken off, this is based on the viewpoint on a design and is one straight line theoretically, respectively.

[0163] If "a guide-bar display" is chosen from the "display" menu of the window upper part, one guide bar 1410 will be displayed. Since the new guide bar 1410 is displayed at every activation of a "guide-bar display", the guide bar 1410 of a desired number can be set up in a window. And these guide bars 1410 can be moved with a mouse 212 to the location of the request on a scale.

[0164] Since I hear that the job is not equally distributed to each printer when the job graph finished with the job graph which can have a guide bar 1410 in various applications, and can be in it, for example, has been finished with the left-hand side, or right-hand side is intermingled, the job of the large printer of a load is reassigned to the small printer of a load, and level doubling of the load of each printer can be carried out.

[0165] Moreover, the check of whether there is any dispersion at the processing stage of each job by which concurrency printing is carried out can have and require a guide bar 1410 by two or more printers. When a certain thing is in the left-hand side of a guide bar 1410 among the child jobs divided from the same parent job and a certain thing is in the right-hand side, the processing stage of a child job has shifted and adjustment of a

printing result etc. cannot be performed efficiently. Therefore, one of jobs is reassigned and it is made for the processing stage of each child job to become coincidence in general.

[0166] Moreover, a guide bar 1410 serves as a standard which grasps which for example, the business outside time amount generates. If a guide bar 1410 will be doubled after [of an on / a scale] 120 minutes till closing time of day supposing it is 2 more hours, it will be the job from which the job to disturb serves as business outside time amount in the right-hand side. It can also use for the check of whether in relation to this, a job with a term will be completed by the term concerned.

[0167] Moreover, a guide bar 1410 is eliminated, when it is moved in the direction of an origin on a scale one by one and only the part of the elapsed time from the time of the setup reaches on an origin. Or supposing it is set as the location of 120 minutes after, for example on a scale, you may say that it is exactly eliminated from a setup after 120 minutes. It follows, for example, if the guide bar 1410 is set as the termination of the job decided to process so far today, the residual time (it is target achievement etc. at 30 more minutes) to target achievement can be grasped with the location on the scale which changes every moment.

[0168] Moreover, the job information-display area 1406 is established in the block of each printer by each printer during the detailed information of the job under processing, and the processing for specifically displaying a document name, a user name, a memorandum, Job ID, a progress situation, and an output gestalt. Although the area which displays a document name, a user name, and a memorandum, and the area which displays Job ID, a progress situation, and an output gestalt are divided in this drawing, this is not based on the convenience on a design for taking balance with the non-assigned job display area 1402 mentioned later, is divided and summarized, and you may make it display it.

[0169] Specifically, a progress situation is "mechanism number-of-sheets"/"the total printing number of sheets" here.

Be alike is indicated. In addition, mechanism number of sheets is number of sheets which already completed printing, and the total printing number of sheets is printing number-of-copies x printing pagination.

[0170] Moreover, chiefly, the job concerned bundles up and is processed by that printer, an output gestalt is divided into two or more jobs, or (batch print) is processed in parallel by two or more printers, and what was assigned to other printers is reassigned to this printer by the bad condition of the printer concerned etc., or (vicarious execution printing) it shows the partition of **.

[0171] Moreover, the printer status-display area 1407 which shows the condition of each printer is established in the block of each printer, and the condition of the printer in this time is displayed on it by the predetermined icon. Drawing 17 is the explanatory view showing the correspondence relation between each icon and the condition of a printer.

[0172] Although explanation is omitted about the semantics of each condition, it supplements only about "STOP." It is a time of actuation of a printer being suspended from the control panel or print server of a printer by the operator that the "STOP" icon is especially displayed, except when the job by which halt assignment was carried out comes. Unlike giving a halt attribute to a job, this gives a direct stop order to a printer.

[0173] Drawing 18 is the explanatory view showing a screen condition (part) in case the condition of a printer changes from "READY" to "STOP." When the job 1801 under halt moves in the direction of an origin on a scale in connection with the passage of time and the tip is in agreement with the origin concerned, a printer condition icon is updated by "STOP" of the following figure from "READY" of the above figure. When a tip is in agreement with the origin concerned, it is a time of the processing stage of the job concerned coming.

[0174] In addition, as for the job under processing, the job which the job under printing is, of course in the middle of printing, and the error generated, and a printing stage include the job stopped since a halt is directed, although it came here. More nearly intuitively, you may call it the job located in the head of the job graph of each printer.

[0175] In addition, in drawing 14, during processing of "Printer A1 No.", the job information-display area 1406 (part) and the printer status-display area 1407 are surrounded by navy blue and the closing line 1411 of 2 dots, and show that it is the printer by which this printer was chosen now (in addition, "the selected printer" differs from above-mentioned "selected group"). About the selected printer, the halt, a restart, etc. can be directed from the icon of the window upper part etc.

[0176] Moreover, the job still assigned to neither of the printers is arranged in the job graphical representation area 1405 in the non-assigned job display area 1402, for example in order of the injection, and is displayed on it. the printing time amount by which the rectangular die length was computed about the job concerned like the

job [finishing / assignment] -- the condition (condition specifically of printer un-assigning) of the job concerned current, in a rectangular color or a rectangular pattern -- moreover, the die length of a job graph shows the total time amount which processing of all non-assigned jobs takes, respectively.

[0177] Moreover, the job information-display area 1409 is established in the non-assigned job display area 1402 during all the sheep quota job information-display area 1408 for displaying the total number of cases and the total printing number of sheets of a non-assigned job, and the selection for [which shifts and displays the document name, user name, and memorandum (comment) of that non-assigned job] choose.

[0178] In addition, in order to assign a non-assigned job to one of printers, selection directions of a job and the quota directions to the printer of the job concerned are inputted from the input section 305. Specifically, a mouse 212 is clicked on a job to assign first a printer. Thus, highlighting of the selected job is carried out by the navy blue closing line 1412 of 1 dot.

[0179] Next, "printer assignment" is chosen and performed from the pull down menu of the window upper part. Thus, when printer assignment is performed from a menu, the printer quota section 307 which received the directions from the input section 305 adds the job under selection to the tail end of a print queue of the printer which there are few loads, namely, can start the job concerned early most at the time in principle.

[0180] However, when there are not the printer that can start processing early most but clear needs of wanting to make it interrupting before this job of this printer especially, the clicked job can be wedged between the jobs of a request of a desired printer by drag and drop as it is.

[0181] As mentioned above, although the boundary of a job and a job is clear with the gap of 1 dot, since it specifies whether the job concerned is actually inserted in which boundary at the time of the drag and drop of a job, the interruption location pointer 1901 as shown in the gap by the side of recently [of a mouse cursor] in principle at drawing 19 is displayed. These pointers also move with migration of a mouse cursor.

[0182] In addition, the priority is beforehand given to each job, and interruption is the same as the job which is going to interrupt, or possible only in front of the job of a priority lower than it. Therefore, even if it is a gap by the side of recently [of a mouse cursor], when what has a high priority is in one job of the backside and interruption of the job of a low priority is forbidden, the gap concerned is interrupted and the location pointer 1901 is not displayed. In this case, the thing nearest to a mouse cursor is chosen from the boundaries which can interrupt, that location is interrupted, and the location pointer 1901 is displayed.

[0183] When there is interruption of the job by drag and drop, the printer quota section 307 which received the notice from the input section 305 is first requested from the printing time amount calculation section 306, is with the print speed of the printer of an interruption place, and makes the printing time amount of a job re-calculate during selection. And a data base manager 303 is requested, and it is made to write in printing schedule table 303b by making printing time amount into the above-mentioned printing time amount, making the processing schedule printer of the job concerned as the above-mentioned interruption place printer.

[0184] In addition The Web interface section 301, the interface section 302 for documentation-management servers, a data base manager 303, the printer interface section 304, the input section 305, the printing time amount calculation section 306, the printer quota section 307, the Maine view display 308 And when CPU201 etc. performs instruction processing according to the instruction indicated by the program recorded on record media, such as ROM202, RAM203, or HD205, FD207, respectively, the schedule view display 309 The function of each part is realized.

[0185] Below, the procedure of schedule view display processing of the printer control device (print server 105) by the gestalt of implementation of this invention is explained. Drawing 20 is a flow chart which shows the procedure of a schedule view display process of the print server 105 by the gestalt of implementation of this invention. When the schedule viewer icon 1204 is pushed on the Maine view shown in drawing 12, processing by this flow chart is started.

[0186] Job graphical representation section 309a of the schedule view display 309 is requested from a data base manager 303, and makes all the jobs that are due to be completed after current time search in each printer in the group chosen in step S2001.

[0187] And in step S2002, the die length of the rectangle showing each job is calculated from the printing time amount of each job held first at printing schedule table 303b. For example, 1 minute on a scale is calculated with 1 dot = 479 dots for a 4 dot x 120-minute-gap, when 4 dots and the printing time amount of a job are 120 minutes. In addition, if it is with such a formula, when a screen is expanded, it will be expanded to the gap of a job, and it will become possible to avoid the problem that appearance worsens.

[0188] Furthermore, the rectangular color or the rectangular pattern that each job is expressed is determined from the condition of each job held at printing schedule table 303b. Moreover, if there is a child job divided from the same parent job with reference to Job ID, the same alphabetic character will be given to those child jobs. And the rectangular image showing each job is created from the above-mentioned die length, a color or a pattern, and the alphabetic character to give.

[0189] Furthermore, in step S2003, it connects at intervals of 1 dot for every printer which was able to assign the image of each job created in step S2002, and the image of the job graph for every printer is created.

[0190] In step S2004, time scale display 309b of the schedule view display 309 is read from the storage section which does not illustrate the image of the time scale currently held beforehand.

[0191] Moreover, in step S2005, guide-bar display 309c of the schedule view display 309 judges the setting existence of a guide bar 1410 from the table which is held inside and which is not illustrated, and reads the setting time currently held at the above-mentioned table when the guide bar 1410 is set up, and its setting location on a scale. And the new display position on a scale is calculated based on the elapsed time from the setting time concerned to current time.

[0192] For example, "a guide-bar display" is chosen from a "display" menu, and it will be that the guide bar 1410 displayed on the location of arbitration was moved to the location 60 minutes after on a scale in 11:00, and supposing it will be current time at 11:10, it will subtract elapsed time 10 minutes from setting time after [of a setting location] 60 minutes, and will compute a new display position the 50-minute back.

[0193] Moreover, 309d of job information-display sections is requested from a data base manager 303, and they make the document name, the user name, the memorandum, Job ID, printing number of copies, the printing pagination, and the output gestalt of a job under processing read from print job table 303a by each printer during processing of the schedule view display 309 in step S2006. Furthermore, the multiplication of printing number of copies and printing pagination which were read is carried out, and the total printing number of sheets of a job is computed during each processing.

[0194] Moreover, printer status-display section 309e of the schedule view display 309 is requested from a data base manager 303, and makes the condition of each printer in the group chosen read from printer table 303c in step S2007. And the image of the icon corresponding to each read condition is read from the storage section which is not illustrated.

[0195] Moreover, job graphical representation section 309a of the schedule view display 309 is requested from a data base manager 303, and makes all printer non-assigned jobs search from printing schedule table 303b in step S2008. And in step S2009, from the printing time amount in printing schedule table 303b, and a condition, the die length, color, or pattern of the rectangle showing each job is determined, and the image is created.

[0196] Furthermore, in step S2010, the sequence of each rectangle created in step S2009 is determined according to the injection time of each job held at print job table 303a, the above-mentioned rectangle is connected at intervals of 1 dot in this sequence, and the image of the job graph of a non-assigned job is created.

[0197] Moreover, they are requested from a data base manager 303, and make printing number of copies and printing pagination of each job read from print job table 303a in step S2011 while 309f of all sheep quota job information-display sections of the schedule view display 309 carries out counting of the total number of cases of the non-assigned job searched in step S2008. And the total printing number of sheets of a non-assigned job is computed by totaling the printing number of sheets (= printing number-of-copies x printing pagination) of each job.

[0198] Moreover, if 309g of job information-display sections has some which were chosen among non-assigned jobs, they will be requested from a data base manager 303, and will make the document name, user name, and memorandum of the job concerned read from print job table 303a during selection of the schedule view display 309 in step S2012.

[0199] And in step S2013, the image created at each above-mentioned step, the read text, the calculated numeric value, etc. are inserted in the image of the schedule view prepared beforehand, and each part of the above crowds for it and carries out a screen display to it. Then, processing by this flow chart is ended.

[0200] Since the load of each printer is graphically displayed by the job graph according to the gestalt of this operation as explained above, it can grasp intuitively whether allocation of the load between printers is made appropriately. Moreover, since it unites and a scale is displayed, not only the relative amount of the load of each printer but absolute magnitude (absolute magnitude converted into printing time amount) can be grasped.

[0201] Moreover, since each rectangle in a job graph expresses the printing time amount of a job with the die

length and is expressing the condition of a job according to the color or pattern, it can grasp intuitively in what kind of sequence the job of a condition like what size throat is supplied to which printer. Moreover, since it turns out easily about what time a certain job is processed by the scale, it becomes easy to carry out term management of each job.

[0202] furthermore, the total amount of the job of each printer in this time, the total amount of a non-assigned job, the condition of each job in this time, or each printer, or the detail of the job under present processing, or the job under selection etc. -- real time -- and since it is easy to understand to an operator and is displayed on him, it is possible to grasp the system-wide present and future system operating status at a glance.

[0203] In addition, the printer control approach explained with the gestalt of operation mentioned above records a program on the record medium which can be read by computers, such as HD and FD besides ROM, CD-ROM, MO and DVD, and an IC card, and is realized by reading from the above-mentioned medium and performing by computer. Moreover, this program can be distributed through networks, such as the Internet, through the above-mentioned record medium as a transmission medium.

[0204]

[Effect of the Invention] In the printer control unit which displays the loaded condition of at least one printer connected by the network according to invention according to claim 1 as explained above A calculation means to compute the time amount taken for the printer assigned by the quota means which assigns a print job to one of printers, and said quota means to process said print job, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed by said calculation means about said print job Since it had a display means to arrange and display said predetermined configuration corresponding to each of all the print jobs that it matches with each printer, and is assigned to the printer concerned with said quota means, and have not been completed yet at perpendicularly fixed horizontally spacing It is expressed in the form of a job graph where the are recording situation of the job to each printer consists of all jobs accumulated in the printer concerned. By this The effectiveness that the printer control unit which can display the loaded condition of each printer intelligibly graphically is obtained is done so.

[0205] Moreover, in order that said display means may display the printer belonging to the same group of two or more groups beforehand classified for every printer by list in said invention according to claim 1 according to invention according to claim 2 It matches with each printer by which said printer belongs to the same group. Since said predetermined configuration corresponding to each of all the print jobs that it is assigned to the printer concerned with said quota means, and have not been completed yet is arranged and displayed at perpendicularly fixed horizontally spacing It is expressed in the form of a job graph where the are recording situation of each printer belonging to the same group consists of all jobs accumulated in the printer concerned. By this The effectiveness that the printer control unit which can display the loaded condition of each printer in a group intelligibly graphically is obtained is done so.

[0206] Moreover, since according to invention according to claim 3 the contents of a display are updated in said invention according to claim 1 or 2 whenever time amount with said fixed display means passes The are recording situation of the newest job to each printer is always reflected in the job graph. By this The effectiveness that the printer control unit which can display graphically intelligibly for real time the loaded condition in each time of each printer is obtained is done so.

[0207] Moreover, according to invention according to claim 4, it sets to invention of any one publication of said claim 1 - claim 3. While said display means displays with the predetermined configuration of having the die length which is proportional to the time amount computed by said calculation means about said print job Since said predetermined color or predetermined pattern of a configuration is changed according to the condition of a corresponding print job and is displayed The condition of each job in a job graph is expressed by the predetermined color or predetermined pattern of a configuration that it corresponds. By this The effectiveness that the printer control unit which can display graphically intelligibly for real time the condition of each job accumulated in each printer is obtained is done so.

[0208] Moreover, according to invention according to claim 5, it sets to invention of any one publication of said claim 1 - claim 4. While said display means displays with the predetermined configuration of having the die length which is proportional to the time amount computed by said calculation means about the print job divided from the same print job Since the same picture or the same color containing the same alphabetic character including a notation etc., a graphic form, or an icon is arranged and displayed the predetermined interior or near [predetermined] the configuration, [concerned] In each job after being divided and distributed by the

concurrency print facility The alphabetic character same on a configuration predetermined [corresponding] is arranged, and the effectiveness that the printer control unit which can display intelligibly the relation of two or more jobs processed by this by two or more printers is obtained is done so.

[0209] Moreover, according to invention according to claim 6, it sets to invention of any one publication of said claim 1 - claim 5. Furthermore, since it had a time scale display means to display the time scale with which the elapsed time from the time of present in Japan has been arranged in the direction parallel to the predetermined configuration arranged and displayed by said display means The effectiveness that the printer control unit which the amount of each job accumulated in each printer and its amount of whole are expressed with the absolute magnitude converted into printing time amount, convert the loaded condition of each printer into printing time amount by this, and can be intelligibly displayed is obtained is done so.

[0210] Moreover, according to invention according to claim 7, it sets to said invention according to claim 6. In furthermore, the direction perpendicular to the time scale displayed by said time scale display means Since it had a guide-bar display means to display at least one straight line which be arranged and displayed with one of the elapsed time and said display means of the time scale concerned and which shifts and passes that predetermined configuration The guide bar which it has in various applications, such as equalization of the loaded condition between printers, and can be been is displayed, and the effectiveness that the printer control unit which can perform equalization of the loaded condition between printers etc. easily by this guide bar is obtained is done so.

[0211] Moreover, since according to invention according to claim 8 only the part of the elapsed time concerned moves said guide bar in the direction of an origin of said time scale in said invention according to claim 7 whenever time amount with said fixed guide-bar display means passes, only in the part of elapsed time, a guide bar goes back a scale top, and the effectiveness that the printer control unit which can grasp the residual time to target achievement etc. easily by this guide bar is obtained is done so.

[0212] Moreover, according to invention according to claim 9, it sets to invention of any one publication of said claim 1 - claim 8. Furthermore, since it had the job information-display means during the processing which matches with each printer and displays the information on the print job under processing by the printer concerned While the detailed information of the job under processing is expressed as each printer and displaying the loaded condition of each printer intelligibly graphically by this in accordance with the are recording situation of the job to each printer The effectiveness which job the job under current processing is and that the printer control unit which can be displayed intelligibly is obtained is done so.

[0213] Moreover, since it is at least one of the document name of the print job which said information is processing, a user name, a memorandum, Job ID, a progress situation, and the output gestalten in said invention according to claim 9 according to invention according to claim 10 It unites with the are recording situation of the job to each printer. By each printer The detailed information of the job under processing, While at least one of the document name of the job concerned, a user name, a memorandum, Job ID, a progress situation, and the output gestalten is specifically displayed and displaying the loaded condition of each printer intelligibly graphically by this The effectiveness which job the job under current processing is and that the printer control unit which can be displayed intelligibly is obtained is done so.

[0214] Moreover, according to invention according to claim 11, it sets to said invention according to claim 9 or 10. Since a job information-display means displays on the viewing area which adjoins the viewing area of the predetermined configuration which matched said information with the printer concerned, and was arranged and displayed by said display means during said processing The detailed information of the job under processing makes each other adjoin by the are recording situation and the printer concerned of a job to a certain printer, and it is displayed. By this The effectiveness that the printer control unit which can express the detailed information of the job under processing to one place as the are recording situation and the printer concerned of a job to the printer concerned collectively for every printer is obtained is done so.

[0215] Moreover, according to invention according to claim 12, it sets to invention of any one publication of said claim 1 - claim 11. Furthermore, when the condition of the print job corresponding to a top thing is stopping among the predetermined configurations arranged and displayed by said display means Since it had a printer status-display means to display the icon which shows a halt of the printer by which the predetermined configuration concerned was displayed by matching It is specified by the icon that a halt of a printer originates in the job under halt instead of a trouble, and the effectiveness that the printer control unit which can display the cause of a halt of a printer intelligibly by this is obtained is done so.

[0216] Moreover, according to invention according to claim 13, it sets to invention of any one publication of said claim 1 - claim 12. Furthermore, the 2nd calculation means which computes the time amount taken to process the print job to which assignment to one by said quota means of printers is not performed yet, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed by said 2nd calculation means about said print job Since it had the 2nd display means displayed on a viewing area other than the viewing area of the predetermined configuration which arranged the predetermined configuration concerned at horizontal or, perpendicularly fixed spacing, arranged with said display means, and was displayed It is expressed in the form of a job graph where the are recording situation of the job which is not assigned to a printer yet consists of all non-assigned jobs. By this The effectiveness that the printer control unit which can display graphically the total amount of the job which is not assigned to a printer yet intelligibly is obtained is done so.

[0217] Moreover, according to invention according to claim 14, it sets to said invention according to claim 13. Furthermore, since assignment to one by said quota means of printers was equipped with all sheep quota job information-display means to display the total and its total printing number of sheets of the print job which is not performed yet While displaying graphically intelligibly the total amount of the job by which the total and the total printing number of sheets of a non-assigned job are specified by the numeric value, and are not assigned to a printer yet by this in accordance with a job graph Displaying for a strict numeric value by the total and the total printing number of sheets also does so the effectiveness that a possible printer control unit is obtained.

[0218] Moreover, according to invention according to claim 15, it sets to said invention according to claim 14. Since said all sheep quota job information-display means display said total and the total printing number of sheets on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed by said 2nd display means The effectiveness that the printer control unit which the are recording situation, its total, and the total printing number of sheets of a non-assigned job make each other adjoin, and it is displayed, and can display the are recording situation, its total, and the total printing number of sheets of a non-assigned job on one place collectively by this is obtained is done so.

[0219] Moreover, according to invention according to claim 16, it sets to invention of any one publication of said claim 1 - claim 15. Furthermore, although assignment to one by said quota means of printers was chosen among the print jobs which are not performed yet, since it had the job information-display means during the selection which displays information While the detailed information of the job chosen among non-assigned jobs is displayed in accordance with a job graph and displaying graphically intelligibly the total amount of the job which is not assigned to a printer yet by this The effectiveness which job the job under current selection is and that the printer control unit which can be displayed intelligibly is obtained is done so.

[0220] Moreover, since it is at least one of the document name of the print job which said information is choosing, a user name, and the memoranda in said invention according to claim 16 according to invention according to claim 17 In accordance with a job graph, at least one of the document name, a user name, and the memoranda is displayed on the detailed information of the job chosen among non-assigned jobs, and a concrete target. By this While displaying graphically the total amount of the job which is not assigned to a printer yet intelligibly, the effectiveness which job the job under current selection is and that the printer control unit which can be displayed intelligibly is obtained is done so.

[0221] Moreover, according to invention according to claim 18, it sets to said invention according to claim 16 or 17. Since a job information-display means displays said information on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed by said 2nd display means during said selection The are recording situation of a non-assigned job and the detailed information of a job chosen before long make each other adjoin, and it is displayed. By this The effectiveness that the printer control unit which can display collectively the detailed information of the job which reaches with the are recording situation of a non-assigned job, among those is chosen on one place is obtained is done so.

[0222] Moreover, according to invention according to claim 19, it sets to invention of any one publication of said claim 1 - claim 18. Furthermore, an assignment means to specify the interruption location of the print job under selection, Since it had an interruption position representation means to have interrupted between two predetermined configurations which were specified by said assignment means and which interrupt and are displayed on the recently side of a location, and to display a location pointer Between which jobs and which jobs the selected job interrupts interrupts, it is clearly shown by the location pointer, and the effectiveness that

the printer control unit which can display intelligibly the interruption location of the job chosen by this is obtained is done so.

[0223] Moreover, according to invention according to claim 20, it sets to the printer control approach which displays the loaded condition of at least one printer connected by the network. The calculation process which computes the time amount taken for the printer assigned at the quota process which assigns a print job to one of printers, and said quota process to process said print job, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said calculation process about said print job Since the display process which arranges and displays said predetermined configuration corresponding to each of all the print jobs that it matches with each printer, and is assigned to the printer concerned at said quota process, and have not been completed yet at perpendicularly fixed horizontally spacing was included It is expressed in the form of a job graph where the are recording situation of the job to each printer consists of all jobs accumulated in the printer concerned. By this The effectiveness that the printer control approach which can display the loaded condition of each printer intelligibly graphically is acquired is done so.

[0224] According to invention according to claim 21, it sets to said invention according to claim 20. Moreover, at said display process It matches with each printer belonging to the same group of two or more groups beforehand classified for every printer. Since said predetermined configuration corresponding to each of all the print jobs that it is assigned to the printer concerned at said quota process, and have not been completed yet is arranged and displayed at perpendicularly fixed horizontally spacing It is expressed in the form of a job graph where the are recording situation of each printer belonging to the same group consists of all jobs accumulated in the printer concerned. By this The effectiveness that the printer control approach which can display the loaded condition of each printer in a group intelligibly graphically is acquired is done so.

[0225] Moreover, since according to invention according to claim 22 the regeneration process which updates the contents displayed at said display process was included in said invention according to claim 20 or 21 whenever still more fixed time amount passed The are recording situation of the newest job to each printer is always reflected in the job graph. By this The effectiveness that the printer control approach which can display graphically intelligibly for real time the loaded condition in each time of each printer is acquired is done so.

[0226] According to invention according to claim 23, it sets to invention of any one publication of said claim 20 - claim 22. Moreover, at said display process While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said calculation process about said print job Since said predetermined color or predetermined pattern of a configuration is changed according to the condition of a corresponding print job and is displayed The condition of each job in a job graph is expressed by the predetermined color or predetermined pattern of a configuration that it corresponds. By this The effectiveness that the printer control approach which can display graphically intelligibly for real time the condition of each job accumulated in each printer is acquired is done so.

[0227] According to invention according to claim 24, it sets to invention of any one publication of said claim 20 - claim 23. Moreover, at said display process While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said calculation process about the print job divided from the same print job Since the same picture or the same color containing the same alphabetic character including a notation etc., a graphic form, or an icon is arranged and displayed the predetermined interior or near [predetermined] the configuration, [concerned] In each job after being divided and distributed by the concurrency print facility The alphabetic character same on a configuration predetermined [corresponding] is arranged, and the effectiveness that the printer control approach which can display intelligibly the relation of two or more jobs processed by this by two or more printers is acquired is done so.

[0228] Moreover, according to invention according to claim 25, it sets to invention of any one publication of said claim 20 - claim 24. Furthermore, since the time scale display process which displays the time scale with which the elapsed time from the time of present in Japan has been arranged in the direction parallel to the predetermined configuration arranged and displayed at said display process was included The effectiveness that the printer control approach which the amount of each job accumulated in each printer and its amount of whole are expressed with the absolute magnitude converted into printing time amount, convert the loaded condition of each printer into printing time amount by this, and can be intelligibly displayed is acquired is done so.

[0229] Moreover, according to invention according to claim 26, it sets to said invention according to claim 25. In furthermore, the direction perpendicular to the time scale displayed at said time scale display process Since

the guide-bar display process which displays at least one straight line which be arranged and displayed at one of the elapsed time and said display processes of the time scale concerned, and which shifts and passes that predetermined configuration was included The guide bar which it has in various applications, such as equalization of the loaded condition between printers, and can be been is displayed, and the effectiveness that the printer control approach which can perform equalization of the loaded condition between printers etc. easily by this guide bar is acquired is done so.

[0230] Moreover, according to invention according to claim 27, it sets to said invention according to claim 26. Furthermore, since the guide-bar regeneration process that only the part of the elapsed time concerned moves said guide bar in the direction of an origin of said time scale was included whenever fixed time amount passed Only in the part of elapsed time, a guide bar goes back a scale top, and the effectiveness that the printer control approach which can grasp the residual time to target achievement etc. easily by this guide bar is acquired is done so.

[0231] Moreover, according to invention according to claim 28, it sets to invention of any one publication of said claim 20 - claim 27. Furthermore, since the job information-display process was included during the processing which matches with each printer and displays the information on the print job under processing by the printer concerned While the detailed information of the job under processing is expressed as each printer and displaying the loaded condition of each printer intelligibly graphically by this in accordance with the are recording situation of the job to each printer The effectiveness which job the job under current processing is and that the printer control approach which can be displayed intelligibly is acquired is done so.

[0232] Moreover, since it is at least one of the document name of the print job which said information is processing, a user name, a memorandum, Job ID, a progress situation, and the output gestalten in said invention according to claim 28 according to invention according to claim 29 It unites with the are recording situation of the job to each printer. By each printer The detailed information of the job under processing, While at least one of the document name of the job concerned, a user name, a memorandum, Job ID, a progress situation, and the output gestalten is specifically displayed and displaying the loaded condition of each printer intelligibly graphically by this The effectiveness which job the job under current processing is and that the printer control approach which can be displayed intelligibly is acquired is done so.

[0233] According to invention according to claim 30, it sets to said invention according to claim 28 or 29. During said processing moreover, at a job information-display process Since it displays on the viewing area which adjoins the viewing area of the predetermined configuration which matched said information with the printer concerned, and was arranged and displayed at said display process The detailed information of the job under processing makes each other adjoin by the are recording situation and the printer concerned of a job to a certain printer, and it is displayed. By this The effectiveness that the printer control approach which can express the detailed information of the job under processing to one place as the are recording situation and the printer concerned of a job to the printer concerned collectively for every printer is acquired is done so.

[0234] Moreover, according to invention according to claim 31, it sets to invention of any one publication of said claim 20 - claim 30. Furthermore, when the condition of the print job corresponding to a top thing is stopping among the predetermined configurations arranged and displayed at said display process Since the printer status-display process which displays the icon which shows a halt of the printer by which the predetermined configuration concerned was displayed by matching was included It is specified by the icon that a halt of a printer originates in the job under halt instead of a trouble, and the effectiveness that the printer control approach which can display the cause of a halt of a printer intelligibly by this is acquired is done so.

[0235] Moreover, according to invention according to claim 32, it sets to invention of any one publication of said claim 20 - claim 31. Furthermore, the 2nd calculation process which computes the time amount taken to process the print job to which assignment to one by said quota process of printers is not performed yet, While displaying with the predetermined configuration of having the die length which is proportional to the time amount computed at said 2nd calculation process about said print job Since the 2nd display process displayed on a viewing area other than the viewing area of the predetermined configuration which arranged the predetermined configuration concerned at horizontal or, perpendicularly fixed spacing, arranged at said display process, and was displayed was included It is expressed in the form of a job graph where the are recording situation of the job which is not assigned to a printer yet consists of all non-assigned jobs. By this The effectiveness that the printer control approach which can display graphically the total amount of the job which is not assigned to a printer yet intelligibly is acquired is done so.

[0236] Moreover, according to invention according to claim 33, it sets to said invention according to claim 32. Furthermore, since assignment to one by said quota process of printers included all the sheep quota job information-display processes that display the total and its total printing number of sheets of the print job which is not performed yet While displaying graphically intelligibly the total amount of the job by which the total and the total printing number of sheets of a non-assigned job are specified by the numeric value, and are not assigned to a printer yet by this in accordance with a job graph Displaying for a strict numeric value by the total and the total printing number of sheets also does so the effectiveness that the possible printer control approach is acquired.

[0237] According to invention according to claim 34, it sets to said invention according to claim 33. Moreover, at said all sheep quota job information-display processes Since said total and the total printing number of sheets are displayed on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed at said 2nd display process The effectiveness that the printer control approach which the are recording situation, its total, and the total printing number of sheets of a non-assigned job make each other adjoin, and it is displayed, and can display the are recording situation, its total, and the total printing number of sheets of a non-assigned job on one place collectively by this is acquired is done so.

[0238] Moreover, according to invention according to claim 35, it sets to invention of any one publication of said claim 20 - claim 34. Furthermore, although assignment to one by said quota process of printers was chosen among the print jobs which are not performed yet, since the job information-display process was included during the selection which displays information While the detailed information of the job chosen among non-assigned jobs is displayed in accordance with a job graph and displaying graphically intelligibly the total amount of the job which is not assigned to a printer yet by this The effectiveness which job the job under current selection is and that the printer control approach which can be displayed intelligibly is acquired is done so.

[0239] Moreover, since it is at least one of the document name of the print job which said information is choosing, a user name, and the memoranda in said invention according to claim 35 according to invention according to claim 36 In accordance with a job graph, at least one of the document name, a user name, and the memoranda is displayed on the detailed information of the job chosen among non-assigned jobs, and a concrete target. By this While displaying graphically the total amount of the job which is not assigned to a printer yet intelligibly, the effectiveness which job the job under current selection is and that the printer control approach which can be displayed intelligibly is acquired is done so.

[0240] According to invention according to claim 37, it sets to said invention according to claim 35 or 36. During said selection moreover, at a job information-display process Since said information is displayed on the viewing area which adjoins the viewing area of the predetermined configuration arranged and displayed at said 2nd display process The are recording situation of a non-assigned job and the detailed information of a job chosen before long make each other adjoin, and it is displayed. By this The effectiveness that the printer control approach which can display collectively the detailed information of the job which reaches with the are recording situation of a non-assigned job, among those is chosen on one place is acquired is done so.

[0241] Moreover, according to invention according to claim 38, it sets to invention of any one publication of said claim 20 - claim 37. Furthermore, the assignment process which specifies the interruption location of the print job under selection, Since the interruption position representation process which interrupts between two predetermined configurations which were specified at said assignment process, and which interrupt and are displayed on the recently side of a location, and displays a location pointer was included Between which jobs and which jobs the selected job interrupts interrupts, it is clearly shown by the location pointer, and the effectiveness that the printer control approach which can display intelligibly the interruption location of the job chosen by this is acquired is done so.

[0242] Moreover, it becomes possible to read the program concerned by computer by having recorded the program which makes a computer perform the approach indicated by any one of said claim 20 - the claims 38 according to invention according to claim 39, and the effectiveness that the record medium which can enforce the approach indicated by this any one of said claim 20 - the claims 38 by computer is obtained is done so.

[Translation done.]